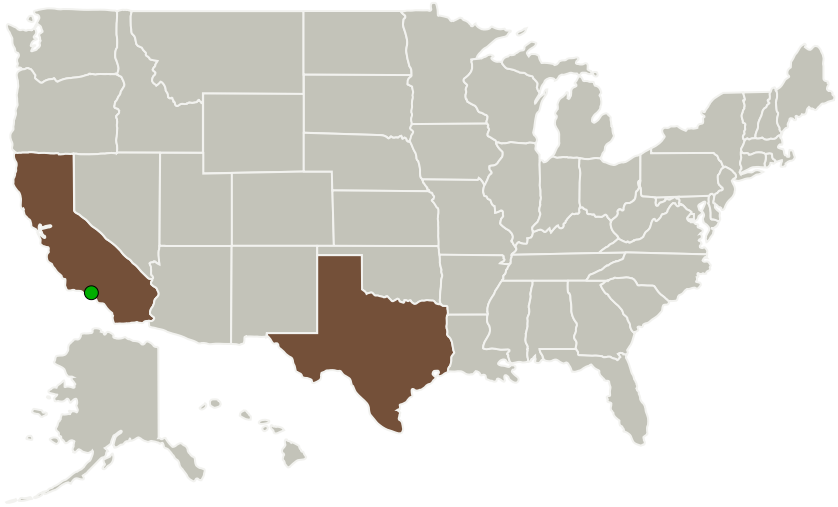
Miniature, Low Power Vacuum Pump for Trace Contaminant Monitors, Phase I

Completed Technology Project (2010 - 2010)

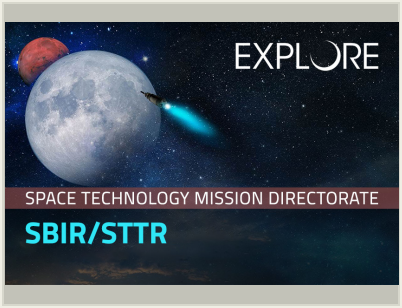
Project Introduction

With the ever increasing complexity and duration of International Space Station (ISS) missions, along with planned lunar and Martian missions, the need for more advance capabilities for monitoring the astronaut crew environment becomes ever more critical. Accompanying this is an unprecedented need for reduction in instrumentation size, weight, and power consumption. Recent advances in sensor technology have led to the development of miniature analytical instruments. However, many of these systems require a means of producing a vacuum with pressures under 1 Torr to either supply a rough vacuum or to back a high vacuum pump such as a molecular drag pump or turbo pump. Unfortunately, currently available rough vacuum pumps remain large, heavy, power hungry and unreliable. Lynntech proposes to develop a long-life, robust, low-power, miniature rough vacuum pump for trace gas contaminant monitors.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Lynntech, Inc.	Lead Organization	Industry	College Station, Texas
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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Primary U.S. Work Locations	
California	Texas

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139236)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Lynntech, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

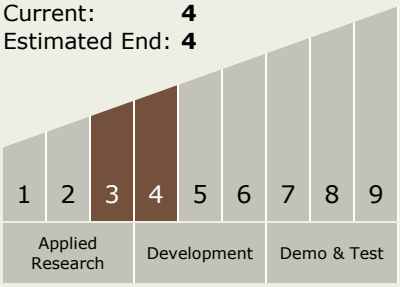
Carlos Torrez

Principal Investigator:

Brian Hennings

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - TX06.4.1 Sensors: Air, Water, Microbial, and Acoustic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System